

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/935,568

REMARKS

Claims 13 – 26 are all the claims currently pending in the application. Claims 1 – 12 have been canceled.

The objection to the specification has been overcome by the correction to page 1 indicated above, which was kindly suggested by the Examiner. A number of other corrections of minor clerical errors in the specification also have been made.

Claims 3, 5 and 9 were objected to under 37 CFR § 1.75(c), and claims 1 – 8, 11 and 12 were rejected under 35 USC § 112, second paragraph, for various informalities. These objections and rejections have been rendered moot by the cancellation of original claims 1 – 12 and their replacement by new claims 13 – 26. New claims 13 – 26 have been drafted to avoid the problems noted by the Examiner.

Substantively, all claims were rejected under 35 USC § 102(e) as being anticipated by U.S. Patent No. 6,563,830 to Gershon et al. This rejection is believed fully obviated by the new set of claims.

The present invention relates to a method for providing improved multicasting in IP distributive networks. In the conventional approach to providing multicasting in an IP environment an IP multicast is carried through an ATM access node using conventional point-to-point techniques over bidirectional connections. An IP routing node duplicates packets prior to retransmission towards the end users. However, duplication of multicast packets in this manner

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is inefficient and prevents the delivery of multicast flows to more than a relatively small number of users because the probability of the typical ADSL node exhausting its capacity is high.

In accordance with the basic concept of the invention, with reference to the example of Fig. 5, a single unidirectional flow of multicast information is provided between an IP multicast router through to a downstream ATM based subscriber access node which communicates directly with ATM based end user modems. On the other hand, separate bidirectional flows over point-to-point connections are provided between each of the end users and the IP multicast router via the subscriber access node.

In operation, an end user sends a request for a desired multicast over the bidirectional point-to-point channel. Processing of the request results in replication of the multicast information in the ATM based subscriber access node and the establishment of a unidirectional flow of the desired multicast information only between the subscriber access node and the end user's modem.

By separating the unidirectional and bidirectional flows in the inventive manner, a much larger number of end users wishing to receive multicast data can be accommodated because it is not necessary to establish individual bidirectional point-to-point flows of the multicast information for each requesting end user.

The Gershon patent relates generally to the field of multicasting, but, as even the title clearly indicates, is concerned mainly with just the registration of multicast flows in an asynchronous transfer mode based emulated LAN. With reference to Fig. 5 of Gershon, an

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upstream LEC handles the registration process (the details of which are not germane here) (see column 13, line 28 et seq.). As Gershon specifically describes, “...the multicast traffic flowing in the ATM ELAN through the SMS entities will be received by all the LECs that specifically registered to receive all multicast flows” (column 16, line 45 et seq.).

Thus, while Gershon does not clearly describe how the individual multicast information flows are produced, from this description it appears that they must be generated far upstream from any equivalent of the subscriber access nodes employed in the applicant’s invention.

In any event, Gershon certainly does not teach or suggest in any manner the separation of the bidirectional and unidirectional flows as in the invention, and the consequential result of providing a network capable of handing far more end user requests for multicast information flows than in the prior art.

The Examiner points to various portions of Gershon’s specification concerning bidirectional point-to-point and unidirectional point-to-multipoint connections, and tries to equate them with the connections and flows of the applicant’s invention. Specifically, the Examiner repeatedly refers to Fig. 5 and the text at column 5, lines 14 – 23, to support the instant rejection. However, a careful reading and consideration of this disclosure, especially in conjunction with Gershon’s disclosure taken as a whole, reveals only that both bidirectional and unidirectional flows of *control information* are used. There is nothing whatsoever to indicate that the multicast information is sent over a single channel to a subscriber access node, there replicated, and only then sent over individual unidirectional connections to the requesting end

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users, while bidirectional connections are provided for the control information between the end users and a multicast router or the like.

New claims 13 – 26, which generally are directed to the specific arrangements depicted in Figs. 5 – 9 of the applicant's drawings, clearly bring out the important distinctions between the invention and Gershon discussed above. As such, these claims are believed fully patentable over the prior art, and hence a notification to that effect is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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